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## THE PHYSICAL EFFECT OF ALCOHOL.\*

BY W. V. WHITMORE, A.M., M.D., TUCSON, ARIZONA.

The first stage of alcoholic intoxication is vascular relaxation, due to vaso-motor paralysis, which is characterized by a glow of warmth and exhilaration. The second stage is one of further diminution of inhibitory control, with incomplete, partial paralysis of the brain and higher nerve centers. In the third stage the intellectual faculties are in abeyance, the only spark of vitality smoldering is the heart and circulation. Death as a result of acute alcoholic poisoning is produced by paralysis of the respiratory centers in the medulla oblongata. Thus it would seem that the symptoms which characterize the various stages of alcoholic intoxication, from the commencement of exaltation to the termination of life, depend upon one primitive cause—the paralyzing energy of alcohol upon living animal protoplasm. If this be true, alcohol is not a “stimulant,” but an “irritant, narcotic paralyzant.”

[\*Abstracted from Southern California Practitioner.]

When alcohol is taken as a beverage, the first organ to be affected is the stomach. Alcohol affects the process of digestion in a four-fold manner: (1) The food in the stomach; (2) the walls of the stomach; (3) the gastric juice; (4) the movements of the stomach.

Alcohol coagulates the nitrogenous foods in the stomach. The carbohydrates do not seem to be influenced by alcohol, probably for the reason that it does not reach that portion of the alimentary tract where these foods are digested.

In the stomach alcohol induces a superficial congestion of the mucous membrane—a dilatation of the arterioles—and this hyperemia enables the mucous follicles and gastric glands to produce a more abundant secretion. Small and infrequent doses produce no more significant results than these. But the habitual excitation of the mucous membrane results in pathological changes in the secretions of both the mucous follicles and gastric glands.

Frequent stimulation and consequent over-action invariably result in impairment or loss of the proper function of the part. The abnormal quantity of mucous elaborated acts as a ferment and the starchy, saccharine and fatty elements of the food undergo the acetic, lactic and butyric fermentations. Acidity, heart-burn, pyrosis and the peculiar retching are thus produced. The increased blood supply to the mucous membrane produces hyperplasia of the connective tissue; the proper secreting structure is encroached upon, and the glands suffer atrophic changes which result in still more important modifications of the gastric juice. By the diminished amount of hydrochloric acid the proteids are not properly changed to the acid albuminate, syntonine and on account of this imperfect preparatory work and also from the lessened amount of pepsin—the characteristic nitrogenous hydrolytic ferment—digestion is very much retarded. Such an intense inflammation does alcohol cause that stagnation of blood is produced which results in death of the tissues and the formation of ulcers. Ulceration of the stomach is said to be more often the result of the use of spirituous liquors than of any other cause.

Not only does alcohol impoverish the quality and diminish the quantity of the gastric juice, as has already been mentioned, but it directly precipitates the pepsin.

Both the rotary and the peristaltic movements of the stomach are said to be diminished by the paralyzing effects of alcohol.

Alcohol, on account of its high power of diffusion, passes readily through the walls of the stomach and is carried by the portal vein direct to the liver. The danger of disease of the liver is

in direct proportion to the amount and concentration of alcohol habitually taken. The steady drinkers of spirits present the largest proportion of diseases of the liver. Hepatic disorders due to alcohol may be arranged in two groups: (1) Congestion and inflammation (2) fatty degeneration. The congestion is due to the direct irritant action of the alcohol itself. The functional activity of the liver cells is increased, at first, resulting in a more abundant glandular secretion. The hepatic cells, over stimulated, produce an imperfect product.

Interstitial hepatitis is, in the great majority of cases, directly attributable to alcoholic excess. Osler states: "Alcohol is the chief cause of cirrhosis of the liver." At first the organ is slightly increased in size. Later it is diminished by the contraction of the connective tissue and the shrinking of the hepatic cells and it becomes smaller, nodulated and hardened.

Fatty degeneration of the liver is of extremely common occurrence in the advanced stages of alcoholism. The size of the organ is often very much increased, frequently weighing fifteen or twenty pounds. A dissector in a medical school tells of finding one liver which weighed fifty pounds. This was in a drunkard who had lived a long time in the East Indies.

From the liver, alcohol enters the general circulation. First let us consider the circulating medium—the blood.

From the red blood cells alcohol abstracts the water, hardening them and causing them to shrink. It likewise interferes with the chemical union of oxygen with the hemoglobin of the red cells, in which oxyhemoglobin is formed. It also interferes with the elimination of carbon dioxide both from the red cells and from the plasma.

Alcohol acts injuriously upon the fibrin of the blood. When taken in excess it causes the fibrin to solidify in the blood vessels and thus stop the current of blood through them. Death has resulted almost instantly from this kind of a change of the blood.

Alcohol at first increases the function of the heart. The first consequence of arterial relaxation is an increased flow of blood into the capillaries. The heart is the first motive mechanism to feel the advantage of an increased supply of blood. Both its nervous ganglia and its muscular tissues are roused to increased activity by this more copious irrigation with the nutritive current of the blood. The force and frequency of the heart beat are increased. There is an increased rapidity of the systole, with shortening of the diastole. Dr. Parkes has calculated that when a man takes two ounces of alcohol daily—the amount supposed to be consumed in the body in twenty-four hours—the heart raises fifteen tons of extra blood one foot each day. This is about 13 per cent. increase of work. Full doses paralyze the heart from the beginning.

Alcohol produces a "fatty heart." This is an actual disintegration in which the muscular fibres are replaced by molecules of fat. All physicians know the weakening effects of alcohol upon the heart. Many times, when about to administer chloroform for surgical operations, have I heard the remark, "Doctor, we will have to be careful; this man is a hard drinker."

Upon the heart beat a moderate quantity of alcohol will produce simply a waved line in place of regular, uniform waves, as traced by the phsygmograph. In case of a drunkard we find the peculiar, nervous, jerking pulse of the weakened heart laboring under the influence of intense mental excitement.

From the heart alcohol goes to the lungs. Here it directly produces congestion and edema. If the congestion be extreme the vessels may rupture and we then have pulmonary apoplexy. Habitual drinkers are far more liable to pneumonia. The careless habits and frequent exposures certainly act as predisposing, if not exciting, causes.

Alcohol also interferes with the process and products of respiration. As already stated, it interferes with the oxygenation of the red cells and with the elimination of the carbon dioxide.

Alcohol produces congestion of the kidneys. Bright attributed from three-fourths to four-fifths of all cases of granular degeneration of the kidneys to the abuse of spirits. This position seems hardly tenable. But whether it have any direct exciting cause or not, it certainly has great predisposing influence. The enlarged, fatty kidney is said to be especially found in beer-drinkers. Strong drink is said to cause the small kidney.

Upon the brain and nerves, alcohol works its most noticeable, and, at the same time, most disastrous results. As a result of the arterial relaxation, the general hyperemia involves the spinal cord; the brain is invaded by the rising flood; its cortical capillaries are crowded with blood. All the intellectual functions are increased in vigor. The ideas flow more easily, the senses are more acute. With the increased action of the alcohol upon the cerebrum the excitement become disorderly, the ideas incoherent and rambling.

Partly as a result of the direct contact and partly from variations in the intracranial blood current, important structural alterations are gradually wrought in the cerebral matter. On account of the neuroglial proliferation, cerebral sclerosis ensues. Hyrtl—the famous anatomist—asserted that he could tell the

brain of a drunkard in the dissecting room in the dark.

The nerve fibers are shrunken, the delicate outlines are almost wholly obliterated, and the minute fibers broken, and thus the nerve rendered wholly useless. As a result of alcohol we have alcoholic paralysis. Some ten years ago Dr. Spalink, of Holland, found in rabbits, as a result of alcohol, a splitting or fissuring, and also a twisting or looping, after a corkscrew fashion, of the axis cylinder. While this condition has not been found in the human subject, yet a corkscrew appearance of the nerves, in chronic alcoholism, is, to say the least, suggestive.

Let us now consider some of the more general effects of alcohol.

First, is it a food? The general classification of food is:

1. Minerals, including water and organic salts.
2. Hydrocarbons, including sugars, starches and fats.
3. Proteids, albuminoids or nitrogenous food.

In no sense does alcohol represent water in its effects upon the body. It is not a carrier nor a distributor of nutrition. Neither is it a conveyor away of the waste products. It contains neither phosphates nor lime, so certainly cannot assist in the formation of bone, as do the principal organic salts.

I do not think anyone at the present day claims that alcohol belongs to the third class of foods. These are called structure-building or tissue-forming foods. These foods contain nitrogen, phosphorus and sulphur—none of which are found in alcohol.

What claim has alcohol to a position in the second class of foods?

It is composed of the same chemical elements—carbon, hydrogen and oxygen; but so are carbolic acid and creosote, and we do not ordinarily call them foods.

A certain amount of alcohol—some

two ounces per day—is oxydised in the body. In this respect it acts like the fuel foods. But morphine burns in our bodies into oxydimorphine; acetic acid is oxydized; ether is decomposed in part; and chloroform is partially destroyed. Does anyone consider these substances food? Muscarine, the active principle of the mushroom plants, is oxydized in the body, but this fact does not prevent it being a violent poison.

It is true that alcohol contains in an unusual degree the elements of heat production. In the number of heat units to the gramme it is exceeded by only one food substance, viz., stearin. When such a heat producing substance is taken in any quantity we would naturally expect the bodily temperature to rise—in fact, to reach the "Yuma point." But the fact is that the temperature is reduced. How is this to be accounted for? We are told that more heat is actually generated but that the increased radiation of heat produces the reduction. To make this claim convincing, there is lacking only one thing, viz., the truth. It is true that there is a slight increase in the radiation of heat, but if more heat were actually produced, then we would find the products of combustion increased. But the water and carbon dioxide of the body are diminished, hence less heat is evolved. Alcohol must, then, interfere with the normal oxidation of the ordinary foods or the waste products. In fact it interferes with both.

Can we properly call any substance a food which—though it is itself oxidized—interferes with the normal oxygen carrying-power of the red blood corpuscles; which, by impairing the activity of the enveloping membrane of each cell and tissue of the body, interferes with the endosmosis of nutrient material and the exosmosis of retrograde products; which retards digestion, thereby reducing the



amount of nutrient pabulum to be taken up by the blood, whose activity, as we have already seen, is likewise impaired by the alcohol directly absorbed? It seems to me that we must conclude that alcohol is not a food, but a medicinal agent which, when ordinary food is absent, may be employed as a substitute—so far as the maintenance of temperature is concerned. It gives no strength, repairs no waste, and therefore, even as a partial substitute for food, it is not suitable for continued use, but only for the temporary demands of an emergency.

But we are told that even if alcohol be not food it is, at least, "force." But what is force? Liebig says: "All experience proves that there is in the organism only one source of mechanical power, and this is the conversion of living tissue into lifeless, amorphous compounds." Metabolism, both catabolic and anabolic, is essential to the production of either potential or kinetic energy. Nutrition and waste are in health, correlated and complementary. They are, in fact, essential and associated processes of life, of which one is not more necessary than the other to the maintenance of health. But alcohol checks normal tissue metamorphosis, as is proved by the diminished amount of urea—the product of tissue metabolism. Alcohol is not force; it is merely the excitant of force. It may act like the spur in the side of a horse, eliciting force, though not supplying it.

What is the power of alcohol to sustain a man in the performance of bodily labor? Labor exhausts vital strength—wasting structure—lowering function. The exhaustion of bodily labor implies disintegration of substance; implies disintegration of power, especially in two tissues—the muscular and nervous. Alcohol is no antidote to exhaustion by labor. It

has no power to repair either muscular or nervous tissue. If it had any power whatever to give strength, those who engage in athletic sports and manual contests would be the first to take advantage of it. But it is rigidly excluded from the dietary even of those who have been accustomed to its use.

It is the universal testimony of those who have led long and perilous exploring expeditions, involving great fatigue and muscular endurance, that muscular overwork is much better endured if alcohol is entirely abstained from.

What power has alcohol to enable one to withstand cold? The belief, formerly general, but now practically abandoned, that it had great power in this way is easily understood. The warmed stomach, the increased force and frequency of the heart beat and the glow involving the whole frame, all tend to give this impression. But the combustibles of the food are sufficient for the due maintenance of temperature. Alcohol usurps the place of such fuel foods. There is an accumulation of suboxidized products, and the whole organism suffers in consequence. We have already seen that alcohol actually lowers the temperature. All observers in the Arctic and Antarctic regions condemn the use of spirits. The Russian army on the march in cold weather not only use no spirits, but no man who has lately taken any is allowed to march. For many years the Hudson Bay Company has entirely excluded spirits from the fur countries to the north, over which it has exclusive control. The guides at Chamouni and the Oberland, when out in the winter, have invariably found spirits hurtful; they take only a little light wine. The same is true of the bathing men at Dieppe, who are

exposed to cold from long standing in the sea.

Has alcohol any power to assist in the endurance of heat? The most conclusive testimony against the use of spirits or beverages containing much alcohol comes from India, Brazil, Borneo and Africa. In these countries it is notorious that the "high livers" are the soonest to die. Dr. Parkes says: "These are precisely the climates where alcohol is the most hurtful." The explanation given is that alcohol interferes with the tissue change, which is already insufficient.

Alcohol directly produces disease. I assert, without fear of contradiction, that there is no cause of disease, in this country, more prolific than alcohol. During the year and a half I was interne at the Los Angeles County Hospital, I heard the superintendent state repeatedly "that, with the exception of the consumptives (who constituted about one-fifth of our number) two-thirds or three-fourths of the patients were brought to the hospital directly or indirectly from liquor." Sir Andrew Clarke said: "I am speaking solemnly and in the presence of truth and I tell you that going the rounds of my hospital wards to-day, one out of every ten owed their illness to alcohol." In one hospital in New York City, one year, out of 204 cases of cholera, only six were temperate persons. These all recovered, while 122 of the others died.

Dr. Cartwright, of New Orleans, says that in one season in that city 5,000 drinking men died with yellow fever before it touched a sober man. A visitor in Japan in 1886, when cholera was raging, states that it picked off the drunkards of Tokyo so thoroughly that the people thought it a judgment from heaven. The same writer was in Santos and Rio Janeiro, Brazil, in the summer of 1891, in the most severe epidemic of yellow fever they have ever experienced. In both places drunkards and heavy drinkers went first and fastest.

Has alcohol any power to prolong life? If so, insurance companies have not yet learned of it. A few years ago the troops of India were divided into three classes—abstinent, temperate and intemperate. The mortality was, respectively, as follows: Eleven per 1,000, twenty-three per 1,000, and forty-four per 1,000. Dr. Hitchcock, ex-president of the Michigan Board of Health, estimates the annual loss of productive life by reason of the premature deaths produced by alcohol at one million, one hundred and twenty-six thousand, and that there are constantly sick or disabled from its use ninety-eight thousand persons in the United States.

"Is 'aqua' alcohol?"

Yes: aqua fortis.

Aqua vitæ once,

Now aqua mortis."



## AUTOMATIC SAFETY-VALVE STOPPER—A DEVICE PREVENTING THE BURSTING OF PEROXIDE OF HYDROGEN BOTTLES.

The great trouble with peroxide preparations is that if the containers are tightly corked, the oxygen which separates and is set free, slowly but constantly as time passes, accumulates, until the bottles can no longer stand the pressure and burst, or the corks are driven out. Of the two alternatives the bursting of the bottles is the most objectionable feature on account of the danger attached to it.

Containers of the hydrogen peroxide, U. S. P., which is a comparatively weak solution of  $H_2O_2$ , yielding but 10 volumes of oxygen, may be closed with a wooden stopper, which, by the porous nature of the material, permits,



(a) puncture.

Cut No. 1. Illustrates the cross section of the safety valve rubber cork, showing the wooden top and the puncture at the bottom. A thin strip of paraffined paper is inserted into the puncture.

the escape of the gas almost as soon as it is set free, thus avoiding explosion and rupture of the bottles or the driving out of the corks.

While these wooden stoppers answer very well for solutions of  $H_2O_2$  responding to 10 volumes of oxygen or less, with stronger solutions, such, for instance, as Marchand's peroxide of hydrogen medicinal (15 volumes), or his hydrozone (30 volumes of oxygen) they are quickly attacked by the solutions, as are also the ordinary corks, and within four months are completely oxidized, not merely bleached, but rendered so soft that they cut like pot

cheese. From that time the goods are unfit for sale.

In order to prevent these difficulties, and especially to obviate the bursting of the bottles containing hydrozone, Mr. Marchand, the manufacturer of that article and other well-known brands of peroxide of hydrogen, has



(a) Puncture

Cut No. 2. Illustrates the cross section of a bottle corked and capped with vegetable parchment and paraffined muslin: no wire.

devised an ingenious stopper which he calls the "automatic safety valve rubber cork," and which is shown in the illustration.

The material of the stopper is vulcanized rubber. The beveled end is punctured through in such a manner that when the pressure in the bottle rises above 5 to 8 pounds to the square inch (according to the thickness of the rubber at the bottom, which may vary slightly), the excess of free oxygen finds free egress and thus relieves the tension.

This device is first inserted, and a plug of porous wood is then driven in, thus stiffening the rubber and completing the operation of "corking."

The capping consists of vegetable parchment covered with paraffined muslin, no wiring being used or needed.



Cut No. 3. Illustrates the top of the bottle with the seal.

It is easily seen that this style of closing the bottle obviates the possibility of bursting. Assuming even, that through some imperfection of the stopper, the puncture should close, as soon as the pressure rises to a point far within that required for rupture of the bottle, the stopper, not being wired down, will yield and be forced out.

Retail druggists who have for so many years been the chief sufferers and losers from the bursting of the peroxide containers, and the deterioration of the substance otherwise from the causes indicated above, will welcome Mr. Marchand's invention as a happy solution of what has to them been a very serious


problem in the past, since it will enable them to supply their trade with the higher solutions of hydrogen peroxide, and especially that preparation of Marchand's, for which the stopper was particularly designed, "hydrozone," which carries 30 volumes of oxygen.

The device described above—the automatic safety-valve stopper—having entirely obviated the danger arising from the explosion of bottles in handling, there is certain to be a largely increased demand for Marchand's concentrated solutions of the peroxide of hydrogen (which alone will be corked with the patented stopper), since physicians anxious to obtain quick results, will never prescribe anything but the most active solutions, or those richest in active oxygen, and since druggists will be protected absolutely against loss by deterioration or explosion. The medical profession is being thoroughly advised of Mr. Marchand's new method of closing his bottles of "peroxide of hydrogen medicinal" and "hydrozone," and will be certain to avail themselves of the advantages thus guaranteed them.—April 1901 issue of *National Druggist of St. Louis*.

NOTE—Remember there is no popping when corks are removed.







## BOOK REVIEW

JOHN L. STODDARD'S LECTURES.

Illustrated, complete in ten volumes. Vol. IV. Batch Bros. Co., Boston, Publishers, 1899. Price \$22 to \$36 per set.

This volume is devoted to the subjects of India, which occupies the larger portion of it, and the Passion Play. India is so vividly described that one feels he were traveling among the Hindoo people in reality. The botanical Gardens of Kandy, the India-rubber tree and bamboo are illustrated. The Mohammed worshipers and their idols, the Parsees and their gifts, are very interesting.

The plates are most excellent, showing pictures of some of the finest of scenery. The peaks of the Himalayas and the railways and modes of mountain climbing are all described. In the second chapter on India the methods of cremation are portrayed. Calcutta, Delhi, the Great Moguls and their palaces and mosques are interesting history.

To all lovers of Biblical history the Passion Play is by far the most interesting subject of this volume. There is no sight in all the world like that during the summer months at Ober-ammergan, and

a quarter million of people from all parts of the earth find their way thither to see this play.

Words cannot fully describe the magnificent tableaux of this play. Its scenery and impersonations are realistic. Ober-ammergan and its surroundings, the country, its people and customs are fully described in the text. Photographic plates of the various scenes of Christ's life are finely executed and reproduced in this volume.

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### GOODELL'S POCKET ANATOMY.

By F. W. Goodell, M. D., Effingham, Ill. Price, \$1.00.

This is one of the best small compends of anatomy that we have seen. The arrangement, the clear statement of the essentials of anatomy, makes it to the medical student and the doctor an invaluable and convenient book to have. Those things which it is essential to know are given, and its form admits of this *vade mecum* being carried with one as a constant companion. It is *multum in parvo*, and the owner of it will prize it.



# Editorial

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Reprints of Original Articles are not furnished except on payment of cost price by the author

Entered at the Philadelphia Postoffice as second-class mail matter.

## EUCAIN IN SPINAL ANALGESIA.

Dr. Jedlicka, of Prague (*Sbornik, klin.* Vol. II., No. 3), has tried cocaine-ization of the spinal cord in seven cases, and has had unpleasant experiences with the drug. He therefore replaced it with Eucain (Alpha-Eucain Hydrochlorate). This he employed in 93 cases of laparotomies of various kinds; operations on the lower extremities, perineum and scrotum, and in various gynecological operations with very excellent results.

The injection was always carried out with technical precision, and there occurred after four minutes, an analgesia beginning at the feet and proceeding up the body in segments. In seven to ten minutes it had reached the navel or even the breast. The extension of the analgesia does not depend upon the dose, but upon the diffusion of the Eucain in the cerebro-spinal fluid. This can be favored by placing the patient in an appropriate position, employing a proper amount of the solution, and diminishing the pressure of fluid within the canal. It is, therefore, well to allow a little of

the fluid to escape before making the injection; at least as much as the amount to be introduced should be allowed to run out.

The phenomena that occur after the injection may be divided into three phases. The first is the stage of analgesia, which usually begins four minutes after the injection, and is heralded by formication and numbness of the lower extremities. In some cases paralytic symptom appear also, such as a feeling of weight and heaviness in the legs; but very rarely is there complete paralysis. The heart may be slowed or increased, but is otherwise, save in the aged, normal. In fact this method of anæsthetization had better be avoided in old persons. Other symptoms noted were nausea and vomiting (only when the stomach was empty), paresis of the sphincter ani, dermographism, and erection of the penis.

During the second stage the patient feels quite well and is in normal condition.

The third stage begins three to six

hours after the injection, and is characterized by headache and increase of temperature. After three hours these symptoms cease; in exceptional cases they last until the next day. The author believes that they appear in consequence of reaction of the membranous envelopes of the cord. If the headache is very severe the patient can be relieved by lumbar puncture and the removal of a little cerebro-spinal fluid. The relief is absolute; and the headache can be prevented by letting a little of the fluid of the cord escape before making the injection. This procedure has

some influence upon the rise in temperature also.

Experiments with the injection of indifferent fluids in dogs have proved that spinal analgesia cannot be effected with them, especially as no destructive action upon the cord must be caused.

The author recommends spinal analgesia, as effected at Maydl's Clinic, in the very heartiest manner. It is an excellent method, that entails no serious danger. It is of inestimable value in patients suffering from heart and lung disease, to whom ordinary narcosis would be extremely dangerous.

#### MEETING OF THE AMERICAN MEDICAL EDITORS' ASSOCIATION.

The annual business meeting of the American Medical Editors' Association convened in the library rooms of the Ramsey County Medical Society, Lowry Arcade building, St. Paul, at 2.30 p.m., Monday, June 3d. The Lowry Arcade building is situated in St. Peter street, between Fourth and Fifth. The session will open promptly at the above hour and all members are urged to be present at that time.

This association, as implied in the name, consists of medical editors of the United States. Meetings are held annually, coincident with the American Medical Association. The aims of the association are the advancement of medical journals, the foundation of an ethical press in medicine, and the improvement of the medical profession in general. The membership includes the leading medical writers and editors of the country.

The meeting this year was a

most successful one, both from the point of presentation of valuable papers and the energetic work of the members of the Association, which was made manifest at the meeting. The preliminary programme was calculated to interest and benefit every medical editor. A partial list of papers includes:

President's Address, Dr. Alex. J. Stone, of St. Paul.

"Relative Value of Advertising," by Dr. John Punton, of Kansas City, Missouri.

Paper, subject unannounced, by Dr. John V. Shoemaker, of Philadelphia.

"Improvements in Medical Education," by Dudley S. Reynolds, of Louisville.

"Some Thoughts on the Ethics of Medical Journalism," by Burnside Foster, of St. Paul.

"Editorial Corps and Medical Journalism," by Dr. George F. Butler, of Alma, Michigan.

"Relation of the Medical Editor to Original Articles," by Harold Moyer, of Chicago; and

Paper, subject unannounced, by

Dr. George H. Simmons, of Chicago.

The annual dinner of the association was held at 9 p. m., June 3d.

#### APPOINTMENT.

Governor Stone has appointed Professor L. Webster Fox a member of the board of Managers of the Orthopaedic Hospital and infirmary for Nervous Diseases, of Philadelphia.

THE Frabenfabriken of Elberfeld Co. have had their Ahenacetin, Aristol, Sulfo-nal and trional patents sustained by the U. S. Circuit Court of Pennsylvania.



## OPHTHALMOLOGY

In charge of J. A. TENNEY, M.D., Boston.

The *Providence Medical Journal* for April publishes an account of a boy whose vision was 1-50th, who was wearing concave spherical lenses of 12 dioptries, when he required convex lenses of 9 dioptries; a difference of 21 dioptries. Another case, a lady, had her glasses changed four times in as many months by a refracting optician, who had albuminuric retinitis, and who died shortly after a diagnosis was made.

A bill to insure the better education of opticians has been introduced into the Illinois legislature. It provides that six months after its passage it shall be unlawful for any unregistered optician to practice as an optician, under a penalty of not less than twenty-five dollars, nor more than a hundred dollars, for the first offence, and double the penalty for each succeeding offence. The State board of opticians is to consist of five opticians, appointed by the governor, to hold office for five years.

G. R. Murray, (Practitioner) states that thyroid extract does no good in exophthalmic goitre, and often does harm.

Thymus gland may be given with safety. In one of his cases, three dried thymus tablets were administered each day for nine months, and the pulse rate, which varied from 132 to 143, gradually fell to 84. The goitre disappeared, and the exophthalmos was diminished. Improvement took place in other cases, although not in such marked degree. He considered liquor arsenicalis, in doses of three or four minims, of great value in many cases; also tincture of convallaria, bromids and belladonna.

Dr. Valk (Phil. Med, Jour.) treats

esophoria by spectacles, prisms combined with lenses, and tenotomies of the internal recti; but he considers shortening of the external recti a superior method of correction.

Dr. E. Fletcher Ingles (Jour. A. M. A.) finds adernalin an effectual astringent in solution 1 to 1500 a solution of desiccated glands 30 grains to the ounce. Combined with boric acid in cinnamon, camphor water or distilled water, it will keep for several weeks.

Dr. Edgar S. Thompson (Med. Record) reports a case of partial recovery from embolism of the central artery of the retina. With the left eye the patient could not see except at a little margin at the upper and outer corner. Left vision, fingers at two feet, in this region of the retina. The ophthalmoscope showed the descending artery nearly obliterated, and the ascending much reduced in size. The macula area was reddish, but not cherry red, and the region had a pale soggy appearance. Three years after, vision was nearly normal in the upper half of the field. The treatment was colored glasses, and 1-60 of a grain of strychnia three times a day. A week later, 1-32 of a grain of bichlorid of mercury was added. Four years after the attack occurred, the patient died from heart disease.

Strzcminski of Wilna (Fortschritte der Medicine) recommends the following ointment for aborting tarsal tumors:

R  
Iodin, 2 parts:  
Potassium Iodid, 6 "  
Lanolin to make 75 "

To be rubbed gently on the affected lid.

Mr. Dodd (Lancet) has reported several cases of removal of the superior



cervical sympathetic ganglion for the relief of glaucoma, the object being to paralyze the sympathetic fibre passing through this ganglion, and allowing the third nerve to contract the pupil. Jonnesco of Buda Pesth, who originated the operation, reports good results in 7 cases. Dodd obtained transient improvement, viz.: cessation of pain, normal tension and contraction of the pupil; but there was prompt relapse to the original condition. Coover (Phila. Med. Jour.) did not succeed so well, the tension remaining plus 1, and the vision relapsed the 12th day. It appears that

the operation is easy and safe, but does not offer great hope of permanent relief.

At a recent meeting of the Wills Hospital Ophthalmic Society, Dr. Schwenk presented a case of a white male, thirty years of age, with congenital cataract. Three brothers were similarly affected, while three sisters had normal eyes. Following a free dissection of the lens, that tissues swelled rapidly, and opaque matter fell into the anterior chamber. A week later, the eye became quiet, and most of the lens material was removed by means of a grooved spatula.



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**THERAPEUTICS**  
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 In charge of H. B. SHEFFIELD, M.D., New York.

**ACETIC ACID AS AN ANTISEPTIC**

Furst, in the *Deutsche Aerzte Zeitung*, speaks of the ordinary vinegar of the household as an efficient antiseptic for the hands of the surgeon in cases of emergency when no other disinfectant can be obtained. After washing the hands with hot water and a potassium soap, and rinsing in hot water, Furst dips the hands into a warm solution of vinegar. The latter, in the strength of 0.6 per cent. to 1 per cent., inhibits the growth of some non-pathogenic germs and kills many pathogenic organisms.—*New York Medical Journal*.

**THE X-RAYS IN MEDICINE.**

The use of the x-rays is insufficiently understood by the majority of non-professional men. Some believe that it is possible to see clearly through the twenty-foot wall of an old Norman donjon keep by their aid, while others are quite sceptical as to their efficacy under any circumstances. Dr. Francis H. Williams, of Boston, has an article in the *International Monthly Magazine* in which the powers of the x-rays are plainly defined. He says: 1st. They act on a photographic plate like ordinary light. 2d. They excite wonderfully brilliant fluorescence in certain substances which disappear instantly as soon as the x-rays are cut off. This property is utilized for medical purposes by means of a fluorescent screen which is made by spreading on a piece of cardboard a thin and even layer of properly made crystals of tungstate of calcium or of platino-cyanide of barium. 3d. These

rays pass readily through substances light in weight, such as cardboard, wood, leather, clothing, paper, fat, muscle and skin, but with more difficulty through heavy substances, such as bones and all the heavy metals. This characteristic of the x-rays demonstrates that our ideas concerning the transparency of objects must be modified and adapted to the form of radiation under consideration.

The x-rays have proved to be of great use in both medicine and surgery, and in no one of either branch more than in tuberculosis. The chief object in this disease is to diagnose tuberculosis as such in the earliest possible stage. This is often an extremely difficult, and in some cases, an impossible matter by ordinary means. By the aid of x-rays, however, those changes in the organs which are the first signal can be detected in the very beginning of the malady, and thus the patient is able to take the steps necessary successfully to fight the disease before it has gained too strong a hold. The benefits conferred on both the individual and the community at large are plainly of the greatest value. As Dr. Williams says, "The limitations and uses of the x-rays not being generally understood, x-ray examinations may and probably will be used to play upon the imagination and credulity of patients. To avoid this danger it is well for persons desiring to be examined by the x-rays, to bear in mind that, in medical cases, this method must be used by the physician, and in surgical cases its results must be inter-

preted by a surgeon." The full "possibilities of the x-ray have not been thoroughly ascertained as yet. There is still a wide field for their intelligent use. *New York Medical Record*.

#### NOTE ON A PRE-ANTHEMAT- OUS SIGN OF MEASLES.

After a mention of Koplik's sign, of the minute, round, discrete, bluish-white specks on a reddish or diffuse red background in the mouth, the author states that in many cases no distinct red spots are to be seen, but the white specks look like particles of salt lying on the surface of the reddened mucous membrane. These white spots are adherent, but may be rubbed off, leaving a smooth pink surface. The buccal mucous membrane, not that of the palate, is the place where their presence should be sought.

These spots appear from twelve hours to three days before the skin exanthem. They generally begin to fade as the skin eruption becomes well developed. He has found this sign of great value in arriving at an early diagnosis of measles. He is unable to say from his personal experience whether these spots are absolutely pathognomonic.

He does not agree that all cases without the spots are cases of *rotheln*, but he is convinced that when spots are present, they invariably indicate the existence of *morbilli*.—*Bristol Medico-Chirurgical Journal*.

#### A CONTRIBUTION TO THE MOD- ERN TREATMENT OF PILES.

The most important factor in hæmorrhoidal disease of almost all kinds is disturbance in the normal formation of the fæcal masses and of the regular soft evacuations, no matter whether the underlying cause is dependent upon some derangement of the intestinal

functions themselves or whether the affection is secondary to or accompanies trouble in other organs. Remembrance of this well known and yet insufficiently appreciated fact is requisite to understand what follows here, and to enable the sufferers from these rectal affections to obtain the full benefit of the remedial measures adopted.

Prevention of the appearance of hæmorrhoidal tumors, or their retrogression and cure when already present, requires as its essential condition the regulation of defæcation; in fact the entire question of the treatment of hæmorrhoids can be summed up in one sentence: "Procuring regular passages from the bowels."

From one point of view physicians do indeed appreciate this fact in their treatment of piles. We do seek to stimulate the sluggish functions of the intestines, the most frequent cause of fæcal accumulation, by means of suitable muscular exercise, stimulating cold douches, massage, proper diet, and, finally, by the use of purgatives. When these measures are conscientiously and persistently followed out, we get fair results in a number of cases; unfortunately they are most often neglected.

Nevertheless, these methods of treatment are never thoroughly satisfactory either to the physician or his patient. The sufferer from hæmorrhoids is always a troublesome patient for his attendant; the latter can finally find no new remedy for the sufferer's ever recurring troubles and complaints; and in the end the dreaded knife of the surgeon, or even the deceptive aid of narcotics, is invoked.

Thus we are forced to realize the fact that, in spite of most careful carrying out of appropriate general mea-

tures, gymnastics, diet, regular attempts at defæcation, etc., in most cases the tendency to the accumulation of faecal masses in the lower large intestine remains. These more or less compact masses cause renewed venous stasis, hyperæmia, irritation, inflammation, and superficial traumata of the rectal mucosa. And since we know that this membrane is always especially delicate, sensitive to all possible influences, prone to take on inflammatory action, in one word diseased, in patients suffering from the hæmorrhoidal tendency, is it any wonder that the above methods of treatment are successful only in a small minority of cases? In point of fact it is these very venous hæmorrhoidal tumors themselves which, together with the swellings of the mucosa, form a mechanical obstruction to defæcation, or are so extremely sensitive to pain caused by the passage of the hardened masses that they occasion reflex spasmodic closure of the anus. This is especially frequent in the worst cases; and it is indubitable and plainly evident that general treatment cannot possibly give us permanent results. The only measures from which relief can be hoped for must be sought in local treatment of the hæmorrhoids themselves.

The diseased portions of the rectum must be themselves attacked. Local treatment is even more necessary in the severe cases that last for months and years, and drive the patient to despair with the pain that they occasion, than in the milder and less chronic ones.

Our first object must necessarily be to soften the faecal masses inside the rectal canal; to make them mushy, so that they may pass the swollen and tender mucosa without causing pain or irritation. This is the necessary

condition and indispensable prerequisite for all further curative measures. The fæces must be prevented from accumulating and hardening in the intestine, and thus exercising further compression upon the veins; and they must be removed without renewed "insult" to the irritated lining membrane of the rectal sack. If that can be effected, the painful swellings of dilated veins can subside without any other remedial measures.

Our second object is to treat the inflamed and secreting mucosa with mild astringent and disinfectant remedies, more especially with such as have desiccating and healing effects. Thus we reduce the blood supply to its normal amount, cause the inflammation to subside, and the denuded areas to heal up. So far as a resitutio ad integrum can be effected at all, it must be done in this way.

For several years past we have been fortunate enough to possess a remedy which fills all the indications above laid down as necessary for the permanent cure of hæmorrhoids. It was discovered in Germany; and after extended and very satisfactory experimentation with it in actual practice, it was called "Anusol" on account of its brilliant curative action in diseased conditions of the anus. In a comparatively short time it has received the highest recognition and testimonies of value in medical circles of both the Old and the New World.

The chemical name of the substance is iodo-resorcinsulfonate of bismuth; it being a combination of bismuth with iodized resorcin-sulfonic acid. In common with several others of the newer dressing powders the action of this new bismuth combination is that of an excellent disinfectant, desiccating secreting and suppurating surfaces, and exercising a marked granu-

lation and cicatrization stimulating effect upon wounds.

More valuable, however, than these varied properties is one possessed by no other medicinal preparation, which renders the use of Anusol indispensable as a basis for the permanent cure of the hæmorrhoidal disease. This is its faculty, when introduced in appropriate form into the rectum, to so soften the more or less hardened fæces there present that they do not simply crumble and pass out as smaller hard masses, but form an even, semi-fluid, gruel-like mass. This can be passed even in the most sensitive hæmorrhoidal condition without any pain, and without in any way irritating the mucous membrane.

Acting thus indirectly as a laxative, and removing the real local *causa morbi* which is the essential obstacle to the cure of the condition, and thus filling all the indications for successful treatment, we are justified in regarding Anusol as a local specific for hæmorrhoids.

Let us compare the usual remedies recommended for hæmorrhoids with it for a moment. Simple or medicated soap or glycerin suppositories, in spite of the watery purgation that they occasion, can be left out of question; for they cause violent local reaction and increase the inflammation, whilst the entire absence of healing or sedative effects absolutely contraindicate their employment.

Again, the several tar-like ichthyol and vaselin products, as also the naphthalin suppositories and salves that have recently been put on the market, can in no way be relied upon in the treatment of hæmorrhoidal diseases. Valuable as these preparations may be in certain internal, and more especially in many cutaneous affections, medical experience is entirely opposed to the

application of tar or tar-like substances to inflamed and secreting surfaces. Nor have any of these preparations the faculty of softening the fæcal masses which Anusol possesses. This, as we have already noted, is of the greatest importance; the first suppository often giving the patient his first easy, bland stool, relieving the pain from which he may have suffered for years, and procuring refreshing and uninterrupted sleep.

Any unusual susceptibility or idiosyncrasy of the rectal mucosa of a hæmorrhoidal patient need not prevent our employing Anusol. On the contrary, if a patient complains that he feels increased irritation and darting pains after the introduction of an Anusol Suppository, one should be introduced twice or three times a day for a week, then a few days should be passed without treatment, and then a single daily suppository will bring the case to a satisfactory conclusion.

The nature and seat of the hæmorrhoidal disease is such that it is by no means suprising that a patient who has been cured should have a slight relapse or experience some symptoms of his former disease, months or even years later. In such cases the administration of a few suppositories will promptly cause all the symptoms to disappear, thus preventing the development of slight disabilities into more serious difficulties; the chief thing being then to employ the Anusol early enough.

It is a further advantage of Anusol that it is entirely non-poisonous, that it has no effect upon the general organism at all, and that its action is entirely local and in the directions above indicated. Hence it can be administered at any age and to both sexes under any condition. This is of the more importance since from its very



varied properties it may be employed in many other diseases in which a smooth, mushy stool is a necessity, but to which enemata with all their inconveniences and contradictions are not applicable.

Anusol has been found a most welcome aid to the gynæcologist in treating the tendency to constipation and hæmorrhoids so marked during the periods of gravidity and menstruation. In these common conditions both practitioners and patients are getting to like it more and more. It has also been successfully employed in pruritus vaginæ, the suppositories being introduced into the affected canal. They are to be preferred in pediatric practice to the customary soap suppositories, which are painful. They can replace dusting powders and healing salves with these little patients; for as soon as the wounded skin either of nursing or adult is rubbed over with a suppository, the hyperæmia, inflammation and oozing cease. In oxyuris vermicularis at any age their action is prompt. Anusol has further been found to be an invaluable aid in all cases of tenesmus, of fæcal impaction in the rectum, in catarrhal proctitis, fissure of the anus, prostatic hypertrophy, carcinoma of the rectum, and intestinal tuberculosis. These are all affections in which a soft and painless evacuation of the bowels gives the patient the greatest possible relief from his sufferings.

Since the iodo-resorcinsulfonate of bismuth is readily decomposable by light and air, but can be kept indefinitely when combined with fats, the manufacturers send it out combined with cocoa-butter, cerate, and zinc oxide, thus :

R  
Anusoli.....7.5 (112 grains).  
Zinci oxidi pur.....6.0 (90 grains).

Balsam. Peruv.....1.5 (22½ grains).  
Olei theobrom.....19.0 (5 drachms).  
Cerat. simpl.....2.5 (40 grains).

Experience has demonstrated that this is the best formula for the suppositories. They are packed twelve in a box. These precautions on the part of the manufacturer are wise and practical; for the druggist is saved the troublesome and disagreeable work of making the cocoa-butter suppositories himself, and the physician is spared the necessity of writing out the dosage of the various necessary constituents of the prescription. The latter need only order :

R Suppositoria Hæmorrhoidalia Anusoli No. 12.

Sig. One to be introduced into the rectum every evening before retiring (in severe cases one morning and evening); or, to be rubbed three times a day over the affected skin.

Besides these practical advantages, placing Anusol on the market in the form of suppositories ready for use has the additional object of bringing it to the physician in permanent and thoroughly stable form. With the most ordinary care, the enveloping fat of the cocoa-butter will preserve the easily decomposable bismuth compound for years, in fact indefinitely. Direct moisture, or the influence of a warm, water saturated atmosphere, sufficient to penetrate the containers and the enveloping tinfoil, will indeed cause a slight separation of iodine, as is shown by a partial yellowish and bluish-black discoloration. This readily happens, as is well known, with all iodine preparations; but it has absolutely no influence upon the efficacy of the suppositories, as numerous experiments purposely made with discolored specimens have abundantly shown.

We can sum up the various facts that we have elucidated above as follows :

1. In the great majority of cases of hæmorrhoidal disease the final and immediate cause is to be found in the accumulation and impaction of fæcal matter in the lower section of the large intestine.
2. To remedy the hæmorrhoidal disease we must remove this morbid factor; and for this purpose we must employ general treatment, but more especially local measures, to

soften the stool and effect an easy and painless defæcation.

3. For treatment on these lines, or as a basis for further radical measures, we have in the iodine-resorcin-sulfonate of bismuth, or Anusol, a thoroughly suitable local specific which answers every requirement.

Anusol is obtained only in the form of suppositories in original packages of twelve.

#### BENEFICIAL ACTION OF UROTROPINE ON PYELITIS; ALSO IN CYSTITIS, WITH FREQUENCY OF MICTURITION.

BY J. POLLOCK SIMPSON, M. D., ETC.

With the great flood of new preparations which have swamped the profession in recent years, many of which are worthless or no better than many drugs and preparations we already possess, it is refreshing to come across some which are an undoubted acquisition to our means of combating the great army of diseases which the practitioner meets with in his daily round. No two cases of disease can be treated in exactly the same way and with the same drugs, as, in addition to a certain specific symptom in either case to which a certain drug may be applicable, there may be others which forbid a certain line of treatment being carried out in an individual example, *e. g.*, a fistula in an otherwise robust patient and the same condition in a patient with advanced phthisis and pyelitis. It is perfectly obvious that the treatment in the *two* cases must be entirely different. The first case is a very simple matter, while the latter is a much more serious condition both as to prognosis and treatment. In the former a simple operation is all that is necessary, with proper cleanliness, dressing, and, perhaps, a tonic; in

the latter something more is required, and the condition of the urine will require a powerful drug that will act beneficially in controlling the putrid condition of the urine, preventing decomposition and so promote healing of the ulcerated surface in the kidney.

In Urotropine we possess a drug which is unique in checking this foetid condition of the urine and in controlling the dull aching pain in the loins, which is such a common accompaniment of this condition. The following cases occurred in my private practice:

*Case I.*—Mrs. C., aged thirty, married for two years, without children. She had suffered for years with periodical attacks of pain in the right loin, especially if she caught cold, followed by turbid stinking urine, which gradually ceased after a few days' rest in bed, but the urine never entirely cleared up till the next attack.

Her then medical attendant never thoroughly grasped her case, and called it colic; he never associated it with the kidney nor did he examine the urine.

I had tried many drugs with only

partial success, and nothing seemed to afford lasting relief until Urotropine was brought to my notice; at first I was somewhat sceptical as to using it, as I had tried so many things previously that had been vaunted as possessing specific properties with no result, that I was inclined to look upon it with the same incredulity. However, in a very severe paroxysm of pain, and the urine being very foetid, I gave this drug a trial in 6 gr. doses with the happiest result; the pain was relieved in a very short time and the urine rendered free from odor or smell, and the pus corpuscles quickly disappeared from the urine, and the patient in a few weeks became free from the severe paroxysms that she had looked upon as part of herself, as she could not carry her mind back to the time when she was free from these attacks.

I had also the best results from another old standing case of cystitis, where the patient, Mrs. B., aged thirty-six, with one child, had been operated on for thickening (inflammatory) of the neck of the bladder following enteric fever, resulting in almost total suppression of urine. The symptoms after operation were frequency of micturition, with acute pain and an inability to empty the bladder completely. This had gone on for some fifteen years after operation, with little relief, unless after insertion of a suppository occasionally, but as this gave the patient very acute pain for a long time after, before any beneficial result, the patient naturally shrank from using this treatment, unless after a long period of suffering. I gave her 4 grs. of Urotropine three times a day, and after the first twenty-four hours she informed me she had not been so easy and free from pain for years, and she continues to receive the same benefit.

If after using it for some days she left it off, and the frequency of micturition returns, she uses it again, she receives the same benefit; she can now retain the urine for three to four hours without discomfort, so that her life has become quite bearable, and in marked contrast to what it was previous to using Urotropine.

*Case III.*—Miss H. B., aged eighteen. Has suffered from cystitis and inflammation of the neck of the bladder for four years, but did not like to speak about it until the pain and her condition became so agonizing that it was a perfect misery for her to go out of doors at all, and she became thin and pale, with a care-worn expression of face and an appetite reduced to vanishing point, and, as she expressed it, her life became miserable, and she could not enjoy life at all. Her suffering becoming so great, she was examined by a specialist. He found, on examination with the endoscope, ulceration at the base and neck of the bladder. She was operated on, the surface of the ulcer being scraped, with no very marked relief at first, until Urotropine was given in 4 gr. doses three times a day. From this time onwards she put on flesh, and took her food with relish. The frequency of micturition lessened, until now she is able to retain the urine in the bladder for four hours at a stretch, whereas previous to this she had to micturate every half hour. I do not know any drug that acts so beneficially in cystitis with frequency of micturition as Urotropine. It renders the urine clear and prevents decomposition, thus favoring resolution and healing of the parts.

#### DIABETES MELLITUS.

WM. HOOKER VAIL, M. D., ST. LOUIS, MO.

After a careful study of and an extended experience in treating that pathological enigma Diabetes Melli-

tus, I have found that aside from the selection of the best remedies, and methods to combat this malady, the physician usually has at the outset to overcome certain grave obstacles, one of which is non-co-operation of the patient.

Very often a patient will—where entire confidence is wanting—secretly believe that the physician is mistaken in his diagnosis and naturally delays treatment, or as he is aware that doctors often disagree he will lose valuable time beating about for another professional opinion hoping it will be a directly opposite one.

Co-operation and confidence are requisites that must be first secured if we are to succeed to any considerable degree in making a cure. These features are of paramount importance as the absence of either will handicap our best efforts.

The patient must be early advised that it will require time, patience and many visits to the office for periodical analysis of urine, physical examination, also for advice as to the continuance or change of the treatment and diet, etc.

Again, so latent, insidious and elusive are the indications and early symptoms of this disease, its presence is usually not detected in most cases, either by the patient, the family or physician until after it has passed beyond the primary or incipient stage. Every physician has some good ideas as to the best methods to adopt and prosecute in treating so menacing an affection, but none are so learned as to entirely ignore the experience of others. There are many methods of treatment and varied are the remedies employed, but I must confess that no drug or yoked treatment can be thrown around any one case of diabetes mel-

litus, at least none that I have been privileged to wait upon.

The difficulty in treating the disease itself, the question of its originality, its cause and course, its duration and advancement, the probable condition of the viscera, and the prognosis, the remedies to be administered, all place this disease as one of the most difficult and perplexing to treat.

In my judgment every gland and emunctory of the body is polluted in diabetes mellitus. Now, this is where I believe many physicians make errors in treating the disease; they lose sight of the fact that the entire body is in a polluted state, that every functional organ is secreting semi-virus. This state of affairs has been of some duration and the somatic is prone to this condition, unless constantly worked with.

The protracted employment of a puissant and cogent detergent that will wash out the stagnated detritus must be insisted on. The detrition of the organs must be made good by the use of easily digested and assimilated foods at intervals, in ample quantities to supply all waste and the demands of the reconstructive apparatus. By purifying every cell we establish free and healthy metabolism. The analects to be gleaned from my experience, is that a potent natural antiseptic alkaline mineral water does more to assist the symptomatic treatment than any other means of medication.

For several years I have employed Allouez magnesia spring water in the treatment of diabetes and in the larger number of cases the results have been very satisfactory. I have found that Allouez will purge these emunctories and destroy the foci of infection, while at the same time, materially assisting in quelling the symptomatic condi-



tions of the various organs of the somatic.

The first favorable changes noted is the rapid decrease in the quantity of urine and sugar with a corresponding decrease of the specific gravity. I allow a mild diet, but am very careful not to have the patient continue long on any one food. Where the disease is in an advanced stage I particularly instruct patient to keep up the daily use of the water for a very protracted period, so that the weakened functions of the emunctories may not allow them to become stipated and throw them into a morbid condition. Allouez is a splendid aid to digestion and assimilation, thus producing perfect metabolism, which is one of the greatest factors we are compelled to deal with in diabetes. It furnishes the requisites of a predigested food, thereby preventing waste, and strengthens every debilitated organ, entering into and purifying the constituents of the cells in the organism.

I recollect a case in which by the liberal use of this water I reduced the specific gravity of the urine from 1042 to 1020 in twelve days and the sugar also fully two-thirds. In a case that has been treated by specialists the urine soon after showed five per cent. of sugar and condition alarming. After two months' thorough treatment with Allouez Magnesia and a diet, there remained no trace of sugar. A decided improvement in all general symptoms was apparent. I will mention one very complicated case: A gentleman, aged 40 years, consulted me about his condition. He complained that he was obliged to pass his urine every hour during the night, and nearly as often during the day with severe pain over the region of the kidneys.

I had his urine measured and found that he was passing two pints in 24 hours, specific gravity 1045. Four ounces of grape sugar was passed in this time. Urea and uric acid were present in increased quantities. He suffered from constant itching or burning along the urethra and prepuce. His thirst was increased, mouth parched, appetite capricious, breath of a sweetish odor, tongue red and cracked, emesis frequent, feces pale and dry, fatigued all the time, some pain and numbness in limbs, considerable emaciation and a distressed appearance of the countenance with other minor symptoms. I placed him on Allouez water and a diet and in two weeks the aggravated conditions were greatly relieved. The specific gravity was reduced, sugar decreased in quantity and tongue became normal. Did not vomit any more after the first day and he was much stronger. He made a good recovery. This was two years ago and he claims to be in excellent health at present.

I feel safe in saying that any physician who employs Allouez Magnesia in diabetes will become a friend of the water, as it certainly produces a marvelous curative influence in severe cases where drug treatment is passive.  
—*Medical Herald.*

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#### THE CURE AND PREVENTION OF SCARLET FEVER BY THE USE OF DIPHTHERIA ANTI- TOXIN.

C. H. Dalton says that two years ago he accidentally discovered that diphtheria antitoxin was an excellent remedy in the treatment of scarlet fever, and later investigation proved that it was equally as efficacious in the prevention of the disease. He has



now tried it in a large number of cases, so many in fact, that he must conclude that it is a sovereign remedy in the treatment and the prevention of the disease. He has used antitoxin in over thirty cases since, and has immunized the other children in the families. None of them had the disease. None of the patients died, and a number of them had the disease in a severe form. A fact which impressed him particularly was the mild form assumed after the use of antitoxin in a number of cases which were running a severe course. It is in the bounds of possibility that, if he had not used the antitoxin, the patients would have gotten along just as well and none of the other children would have taken the disease, but, in view of the large number of children involved and the contagious nature of the disease, it seems that this is highly improbable.—*St. Louis Medical Review*, April 6, 1901.

#### ALCOHOLISM IN CHILDHOOD.

M. Kassowitz has seen both functional disorders, such as delirium tremens, alcoholic mania, and epilepsy, and actual organic lesions follow the protracted use of alcohol in children, and believes that they are often produced by even the milder forms of stimulating beverages, such as beer and light wines, given in amounts universally regarded as harmless. It, therefore, seems justifiable to conclude that there is an especial susceptibility of the immature organism as a whole, and especially of its nervous system, to the effects of alcohol, and the prevalent belief that small amounts may in some conditions of weakness and disease be advantageously given to children as a tonic and roborant, is unfounded. Physiological investigation has shown that

the older view that alcohol is a food and capable of preventing tissue destruction is groundless, for nitrogen elimination is increased and not diminished by it, and it is a close corollary to this observation that stunting in growth and development follows its protracted use in children. Furthermore, it is deficient in the very properties for which it is most often given, for it is a hindrance and not an aid to digestion, is dangerous as an antipyretic, its stimulating effect is fleeting and followed by muscular and nervous depression, and its use as an internal antiseptic in the infectious diseases is in the light of recent animal experiments wholly irrational, so that its administration to children in sickness or health is absolutely to be deprecated.—*Wiener klinische Rundschau*, April 7, 1901.

#### NEURASTHENIA: SOME POINTS IN ITS PATHOLOGY.

The comparatively sudden recognition, through the work of Dr. Beard, about a quarter of a century ago, of the morbid state since known as neurasthenia, forms one of the curious chapters in the history of medicine. While there is ample proof that there has been a tremendous increase of the condition in recent times, it is also equally certain that it is older than the history of medicine. We find the familiar syndrome of insomnia, nervous anxiety, disturbance of vision, ringing in the ears, vertigo, and difficult breathing described by Hippocrates. Passing over the intervening centuries, and simply noting a few suggestive titles in literature, we find one of Robert Whytt's, in the middle of the eighteenth century—"Observations on the Nature, Causes and Cure of Those Disorders which Have Been Commonly Called Nervous, Hypochondriac or Hysteric;

to which are Prefixed Some Remarks on the Sympathy of the Nerves." This was honored by a translation into French. Coming down to the present century, the "Erethism Nerveux," of DePau, 1819; the "Neuropathie ou Vapeurs," of Doujens, 1824; the "Nervose Proteiforme," of Cerse, 1841, and the "Cachexie Nervose, Etat Nerveux," by Sandras, 1859, sufficiently indicate, by their titles, confused recognition of the condition we are considering.

The complete pathology of neurasthenia can only be written when we fully understand the histochemistry and histology of fatigue, which are simply the chemical and structural changes incident to normal function everywhere, morbidly intensified and prolonged. I need scarcely call to mind how distant is the realization of this ideal; and yet we have sufficient information along these lines to form a substantial basis for the construction of a somewhat crude pathology, in accordance with obvious and legitimate analogies, which may serve as a useful working hypothesis to be tested and modified by further observation and study.

First in importance is the structural alterations in the ganglionic cells under the influence of overaction or fatigue, and the credit for our knowledge of this belongs to American medicine in the person of Dr. Hodge, whose investigations have been followed by similar work all over the scientific world, culminating in the recent tentative volumes by Barker and Van Huchten. The detailed discussion of these changes would lead me too far, and I must content myself by pointing out that it has been satisfactorily proven that there are definite structural alterations of the neuron, as a result of fatigue, which can be positively demonstrated under the microscope by the proper technique. The most constant phenomena observed by the different investigators are shrinkage or disappearance from the cell-body of cer-

tain granular masses variously known as Nissl bodies or tigroid masses, the precise nature, function and significance of which still remain in doubt.—G. W. McCaskey, M. D., in the *Indian Lancet*.

#### "A VOICE FROM THE GRAVE."

Many people are apt to treat the subject of premature burial lightly, to pooh, pooh it, and, in fact, to declare that the cases recorded exist only in the disordered brains of the narrator. The reason for this is that they have never studied the subject, nor has it come home to them as in numerous cases of recovering consciousness after being medically certified as dead, and laid out for burial. Nevertheless, burial alive is a real danger, and will continue to be so until proper precautions to prevent it are legislatively adopted. Doctors are by no means infallible, they often blunder in the diagnosis of ordinary diseases, as every observant person must be aware, and it is especially difficult to distinguish between real and apparent death. All the so-called signs of death, except putrefactive decomposition, are more or less fallacious. A remarkable instance of medical liability to error in the matter of life or death, related by the Right Rev. Samuel Fallows, of Chicago, Missionary Bishop of the Reformed Episcopal Church, appeared in the "Weekly Times and Echo," a well-known London journal, on June 3d last. It would occupy too much of your valuable space to give it as published, but the main facts are as follows:—The wife of a young business man, a woman of strong emotions, and most delicate perceptions, became ill, and, after a few weeks of agony, during which her husband waited on her with assiduous constancy, there being rare sympathy between them,

she apparently died. There was not the least doubt about it in the doctor's mind. The usual phenomena of death were present, a certificate of death was made out, an undertaker was called in, the body was placed in a coffin, and on the third day was buried in a cemetery at some distance from the home. The husband grieved greatly, so much so that his relations feared an attack of melancholia, and a cousin stayed with him that night to cheer him up. After long wakefulness the sorrow-stricken husband fell into a disturbed sleep, and in the middle of the night was awakened by a voice calling "Charles! Charles!" It was a dream, he thought, and went to sleep again, but was once more aroused by an unfamiliar voice saying "Charles! Charles!" Still thinking it only a dream he again slumbered, when at daybreak he heard and recognized his wife's voice crying, in tones of distress, "Charles! Save me! Charles!" He sprang out of bed, and, finding himself alone, rushed into his cousin's room shouting, "Get up! We must hurry to the cemetery. She is alive! She is calling me!" Although of a sceptical nature, the cousin was strongly impressed by the man's impetuous conviction. Both hurried on some clothing, and while one harnessed the horse to a light buggy, the other procured spades. Having driven to the cemetery, they leaped out at the graveside, hurriedly dug till they reached the coffin of the woman who had been buried the previous afternoon, wrenched off the lid, and found the poor creature feebly trying to turn over in her narrow bed. The two men carried her to the buggy and drove home, and, under careful medical attention, the lady slowly recovered from her malady. The same issue of the journal before-named re-

ports the rescue of a woodman in Hungary after being buried alive in a grave for three days.

The lesson to be learned from these cases is that medical certificates are no proof of death, and that no person should be buried or cremated until absolute signs of putrefactive decomposition are manifest. A society has been founded in London with the object of obtaining legislation which would render such tragedies impossible, of which I shall be pleased to send particulars, with other literature on the subject, on receipt of a large envelope stamped and addressed.—*Jas R. Williamson in The Indian Lancet.*

#### ON THE SIGNIFICANCE OF THE TONSILS OF YOUNG CHILDREN AS PORTS OF ENTRY FOR TUBERCULOUS INFECTION.

Friedmann (*Beiträge zur pathol. Anatomie und zur allgemeinen Pathologie*, Bd. xxviii, No. 1) adduces a series of nearly one hundred and fifty cases of pulmonary and glandular tuberculosis in very young children in which the tonsils were examined for the presence of bacilli and tuberculosis.

The number of positive results obtained was extremely small. The author speaks of four or five unobjectionable cases and others concerning which some doubts were present. The tonsil does possess some significance as a port of entry for tuberculosis, because in these positive cases acute primary tonsillar tuberculosis was present without the coincidence of any other tuberculous focus throughout the body.

It is difficult to determine the manner in which the bacilli reach the tonsils. These micro-organisms possess no power of active movement, and it is assumed that the lacunæ must possess the faculty

of suction, since particles of carmine and coal dust are able to penetrate into these crypts. It is held by investigators in this field that the bacilli can penetrate into the lymphoid tissue without any injury to the epithelia, and the author himself has several times encountered them *within* the latter.

Supposing that the bacillus has attacked the tonsil, causing acute tonsillar tuberculosis, to what extent does this local infection menace the general health?

It is quite possible for this local affection to heal, but such a termination must be regarded as infrequent. The tendency is for the bacilli in the tonsil to be carried by the lymphatics to the cervical and thoracic glands. Dmochowski once succeeded in finding bacilli in the lymphatic vessels which lead to the superior cervical glands. In nearly all of the author's material the cervical glands were either caseous or, at least swollen.

In one particular case the pretracheal glands had become involved. The coincidence of scars in the tonsil with cheesy cervical glands is said to be quite common.

May the tonsils furnish a port of entry for general infection without themselves becoming tuberculous? This question is difficult to answer, but a negative reply would doubtless be correct. With a single exception the present author never found bacilli in the tonsils without the presence of pathological changes.

Friedmann's personal belief is that in cervical-gland tuberculosis, the tonsil represents the port of entry. His conclusions in general are as follows: The tonsils of very young children have some bearing as a port of entry for tuberculosis. While the actual proportion of such cases is small, we must bear in mind that tonsillar tuberculosis is not always readily recognizable. The specific process may have terminated in cicatrization, or the technique may have been inadequate to

reveal the bacillus. The hypertrophy of the tonsils which may be seen in healthy children is probably of tuberculous character only in the rarest cases. The mode in which the tonsil is primarily infected is probably connected with alimentation.—*Journal of Tuberculosis*.

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#### THE SYMPATHETIC ORIGIN OF ASTHMA.

In a discussion respecting the origin of asthma and the numerous theories which have been presented to account for the peculiar disturbances in the respiratory rhythm occurring in this disease, a recent writer calls attention to an observation which long ago convinced him that the characteristic feature of this disease is more or less directly connected with the sympathetic nervous system, at least in cases of the so-called "nervous type" of asthma. Having for many years made a careful study of the so-called Leukart's points, the ganglia of the sympathetic located in the region of the umbilicus, attention was incidentally called to the fact that pressure upon these points may bring on immediately a paroxysm of asthmatic breathing in patients subject to asthmatic attacks. This observation was made in a number of patients, and has frequently been repeated. The pressure should be made about two inches on either side of the umbilicus, the fingers being carried well back until the posterior wall of the abdominal cavity can be distinctly felt. The sensitive areas are often no more than one-half inch in diameter, so that they may easily be overlooked unless the examination is carefully made.—*Modern Medicine*.

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The psychological depressions and neuralgias, so common in the period following a debauch are lessened, or disappear altogether, by the use of Celerina.

**THE NERVOUS SYSTEM AND ITS  
CONSTITUENT NEURONES.**

By Lewellys F. Barker, M. B. Published by D. Appleton and Company, New York. Sold only by subscription.

Prof. Barker is Associate Professor of Anatomy in the Johns Hopkins University and Assistant Resident Pathologist to the Johns Hopkins Hospital. These relationships and his wide reading have thoroughly qualified him to write on the subject of nervous diseases.

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